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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
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EXAMINER

CALEY, MICHAEL H

ART UNIT PAPER NUMBER

2871

DATE MAILED: 08/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/083,505

Applicant(s)

KLEIN, SUSANNE

Examiner

Michael H. Caley

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 7, 9, 10 and 12 is/are rejected.
- 7) ☐ Claim(s) 3, 6 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Specification*

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Liquid Crystal Display having Light Pipe Illumination.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Soref (U.S. Patent No. 5,479,276).

Regarding claim 1, Soref discloses a device having:

a planar light guiding medium formed of liquid crystal material and having a light emitting surface and one or more side faces disposed around the light emitting surface (Figure 1 element 20);

a plurality of light pipes, each light pipe having a collector end for collecting light an output end, the output ends being arranged along the side faces so as to introduce the collected light into the guiding medium (Figure 1 element 16);

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wherein the output ends of the light pipes are distributed along the side face

(Figure 1 element 16).

Applicant limits the side face of the planar light guiding medium as disposed around the light emitting surface. The Examiner notes that such a limitation is inclusive of a side surface opposite the light emitting surface (Figure 1).

Regarding claim 4, Soref discloses the light guiding medium as having a planar back surface, and wherein a reflecting layer is provided on the back surface of the light guiding medium (Figure 6 elements 124, 126, and 128).

Claims 1, 5, 9, 10, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Baker (U.S. Patent No. 4,720,172).

Regarding claims 1 and 12, Baker discloses a device having:

a planar light guiding medium formed of liquid crystal material and having a light emitting surface and one or more side faces disposed around the light emitting surface (Figure 1 element 20);

a plurality of light pipes, each light pipe having a collector end for collecting light an output end, the output ends being arranged along the side faces so as to introduce the collected light into the guiding medium (Figure 1 element 16);

wherein the output ends of the light pipes are distributed evenly along the side face (Figure 1 element 16).

Regarding claims 5 and 10, Baker discloses the device as having:

means for applying an electrical signal to the guiding medium in one or more localized areas; and,

the guiding medium is responsive to the electrical signal such that the optical properties of the optical medium are changed in each localized area where the electrical signal is applied, light traveling along the guiding medium exits the guiding medium through the light emitting surface, and where the electrical signal is not applied, light within the light guiding medium is channeled therealong (Figures 2 and 3, Column 6 lines 9-45).

Regarding claim 9, Baker discloses the light pipes as formed from optical fibers (Figure 1 elements 24, 26, 28, and 30).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baker.

Soref discloses the collector ends of the light pipes as distributed over a light collecting area (Column 6 lines 33-36). Soref fails to explicitly disclose the collector ends on the light

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collecting area as scrambled relative to the position of the corresponding output ends on the side faces of the light guiding medium. Soref, however, discloses the optical device as useful in telecommunications networking applications (Column 1 lines 16-43).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have distributed collector ends on the light collecting area scrambled relative to the position of the corresponding output ends on the side faces of the light guiding medium. In implementing such an optical network, the positional relationships of the output ends and the collector ends of the fibers occur randomly, depending on the physical placement of the light emitting devices and the switch device as disclosed by Soref. Given that the fibers collect the light from these device, one would have been motivated to place the fibers in a scrambled position relative to the light emitting devices in order to accommodate for the most natural placement of the light emitting devices according to the architecture of the system.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baker in view of Soref.

Baker discloses all of the proposed limitations except for a quarter wave plate as provided at the output of each light pipe. Soref, however, teaches the use of a wave plate in order to accommodate the polarization of light to function correctly within the switching element (Figure 9 element 176).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a quarter wave plate at the output of each light pipe. Such an improvement would have been an engineering expediency in order to accommodate the incident

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light for a particular type of switching architecture as taught by Soren. The use of such a wave plate in a switching device would have been motivated by a desire to cascade a variety of switches in order to increase the port capacity for the switch and size of the network.

*Allowable Subject Matter*

Claim 11 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to disclose an electronic device having a light guide as proposed providing light to a display area. In particular, the prior art fails to disclose the light guide as having a liquid crystal light guiding medium with a light emitting surface and a side face around the emitting surface in which the output ends of light pipes are arranged along the side faces as proposed.

Claims 3, 6, and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 3, the prior art fails to disclose a planar light guiding medium with light pipes arranged about it as proposed having a display secured in a casing over which the collector ends are distributed.

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Regarding claim 6, the prior art fails to disclose a planar light guiding medium with light pipes arranged about it as proposed having a scattering layer provided between the light emitting surface and the light guiding medium.

Regarding claim 8, the prior art fails to disclose a planar light guiding medium with light pipes arranged about it as proposed having collector ends of the light pipes secured in a bunch and a means for securing the bunch relative to a display area.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,407,785 to Yamazaki disclosing a liquid crystal display device having light pipes with output ends arranged along the side face of a reflecting and scattering surface.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (703) 305-7913.

The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



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mhc  
July 21, 2003

  
ROBERT H. KIM  
SUPERVISOR OF EXAMINER  
TECHNOLOGY CENTER 2000